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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,341	07/14/2006	Fumihiro Hayashi	049677-0186	2432

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EXAMINER

LAM, CATHY FONG FONG

ART UNIT	PAPER NUMBER
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1794

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/586,341	Applicant(s) HAYASHI ET AL.	
	Examiner Cathy Lam	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>07-16-2008</u> . | 6) <input type="checkbox"/> Other: _____ |

In view of the amendment and remarks filed on August 04, 2008, the pending claims continue to be unpatentable as following:

Claim Objections

1. Claims 1, 8, 10 and 12 are objected to because of the following informalities: applicant in claim 1 has changed from "through portions" to – through holes --, applicant is required to be consistently through out in the claims. Furthermore, in claims 1, 8 and 10, there is lack of antecedent basis for "the opening shapes". Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 is vague and indefinite, as to whether or not applicant is trying to claim the abrasive grains are equal to or greater than the pore size of the molded product? If so, it is not clearly claimed.

Claim Rejections - 35 USC § 103

3. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meola (US 5498467) in view of Hiraoka et al (US 5684065).

Meola teaches a process for producing conductive areas in a porous member to form a printed circuit board.

A porous member that includes a series of conductive paths through the thickness direction from one side to another side of the member is formed by the following steps:

Firstly, treat the porous member with a liquid radiation sensitive composition (col 2 L 47-49). Secondly, place an opaque mask over selected areas of the porous member (col 2 L 58-60). Thirdly, expose the treated member to UV radiation (col 2 L 61-62). Fourthly, remove the mask from the porous member (col 2 L 65-67).

Sixthly, apply a reactive metallic cation replacement solution to the porous member to provide a suitable stabilized area to receive a conductive metal (col 3 L 6-8). Wherein the metallic cation is preferably a palladium or a gold (col 3 L 11-13). The examiner is taking the position that this metallic cation replacement solution coating step is equivalent to the claimed plating catalyst.

After the metallic cation replacement solution is deposited, the porous member is subjected to electrolessly plated with a conductive metal salt (col 3 L 14-16).

The porous member is a stretched microporous polytetrafluoroethylene. The porous member can be another material such as a woven or nonwoven fabric, etc. (col 4 L 1-4).

Meola teaches the processing steps of the present invention except it does not teach the use of spraying a fluid or spraying a fluid containing abrasive grains from above the mask.

Hiraoka teaches a molded fluorine containing article that is to be surface modified.

The fluorine containing resin molded article, is irradiated on its surface with a laser beam through a basic solution (col 1 L 60-63 & col 3 L 3-5). The basic solution can be an inorganic basic compound or an organic basic compound (col 3 L 32-36).

After the laser beam irradiation through a basic solution, the molded article has an improved surface for electroless plating of a metal (col 6 L 32-35).

In view of the prior art teachings, one of ordinary skill in the art would use an abrasive fluid with or without abrasive grains for forming through holes or recesses in a substrate because abrasive etching is a well known process in etching art.

Claim Rejections - 35 USC § 102

4. Claims 12-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Fukutake et al (US 5252383).

Fukutake teaches a printed circuit board comprised of a polymeric substrate (1), through hole (4) and a metal layer (2).

Through hole (4) is formed in the polymer substrate which is a porous fluororesin sheet (1). Metal layer (2) is plated onto the surface of the polymeric substrate and plated onto the through hole. The metal layer forms printed circuitry (col 1 L 55-64 & Fig. 1).

Double Patenting

5. Claims 1-11 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4, 16 and 28 of copending Application No. 10/559,580. Although the conflicting claims are not identical,

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they are not patentably distinct from each other because the processing steps are similar.

6. Claims 1-11 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3 and 6-13 of copending Application No. 11/660,993. Although the conflicting claims are not identical, they are not patentably distinct from each other because the steps of making the product is similar.

7. Claims 1-11 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-21 of copending Application No. 10/551,459. Although the conflicting claims are not identical, they are not patentably distinct from each other because the processing steps for forming the product is similar.

8. Claims 12-13 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5 of copending Application No. 11/994,115. Although the conflicting claims are not identical, they are not patentably distinct from each other because they are structurally and materially the same.

The above rejections are provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct

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from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Response to Arguments

10. Applicant's arguments filed on August 04, 2008 have been fully considered but they are not persuasive. Applicant in the Remarks traverses the art rejections and raises the following issues:

A. Fukutake fails to disclose or suggest an electric circuit component comprising a patterned porous molded product As recited by claim 12.

B. On page 9 of the remarks, the last full ¶, applicant states "Hiraoka discusses irradiating the laser beam over the surface of the porous molded product to modify the surface. The porous member of Meola is replaced by a molded fluorine containing article of Hiraoka that is irradiated on its surface with a laser beam through a basic solution....., even though Meola and Hiraoka do not disclose or suggest, placing a mask having through holes in a pattern, spraying a fluid or a fluid containing abrasive grains from above the mask or forming through holes or recessed portions, as required by amended claims 1 and 10.

In respond to the above issues:

- A. Fukutake clearly teaches all the claimed elements of the present invention.
- B. Applicant interpreted the 35 USC 103 rejection in a wrong sense. Claims 1-11 was rejected under Meola in view of Hiraoka.

Meola teaches a fluorine porous member as a substrate for a printed circuit board. A mask was placed over the porous substrate before the UV radiation exposure. Then, a metal catalyst solution is formed onto the porous substrate in a desired pattern (or location), followed by a metal plating over the metal catalyst.

Meola does not teach the through holes were formed by spraying a fluid or spraying a fluid with abrasive grains.

Hiraoka teaches forming through holes in a fluorine resin molded article using a laser beam through a basic solution. Applicant is asked to review the art rejection once again for clarification. The art rejection has been clearly set forth and believed to be appropriate.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cathy Lam whose telephone number is (571) 272-1538. The examiner can normally be reached on 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cathy Lam/
Primary Examiner, Art Unit 1794